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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,450	10/23/2003	Scott Hanggie	306212.01/MFCP.140739	6405
45809 7590 04/09/2010 SHOOK, HARDY & BACON L.L.P. (MICROSOFT CORPORATION) INTELLECTUAL PROPERTY DEPARTMENT 2555 GRAND BOULEVARD KANSAS CITY, MO 64108-2613				
EXAMINER				
AMIN, JWALANT B				
ART UNIT		PAPER NUMBER		
2628				
MAIL DATE		DELIVERY MODE		
04/09/2010		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/691,450

**Applicant(s)**

HANGGIE ET AL.

**Examiner**

JWALANT AMIN

**Art Unit**

2628

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 7-11, 15, 17-24, 27-31 and 37-48 is/are pending in the application.
- 4a) Of the above claim(s) 3, 4, 23 and 24 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 2, 7-11, 15 and 17-20 is/are allowed.
- 6) ☒ Claim(s) 21, 22, 27-31 and 37-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-940)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 02/18/2010, 03/02/2010
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/18/2010 has been entered.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 21-22, 27-31 and 37-48 have been considered but are moot in view of the new ground(s) of rejection.

3. Regarding claims 21 and 39, the applicant argues that Morgenstern, Portuesi, Erickson, Apple Computers, Lipton, Lyons, and Moki, fail to describe or suggest "...receiving, at a desktop window manager (DWM), application content from legacy applications in a top-to-bottom order to display the application content received in a top-to-bottom order in windows corresponding to the legacy application in the graphical user interface, wherein DWM redirects the application content received to the CDWM; stripping out application content received from the legacy applications, wherein the legacy texture of the primary content is retained but legacy window frames, legacy borders, or legacy captions of the legacy application content are ignored" (see pgs. 16-17 of applicant's remarks). The applicant further argues "...Nothing in Morgenstern

describes or suggests interfacing with legacy application content." (see pg. 17). The applicant further argues "...Portuesi fails to describe or suggest legacy application that is received in the top-to-bottom order is rendered in the top-to-bottom order in a legacy application window." (see pg. 17). The applicant further argues "... Apple Computers fails to describe or suggest rendering windows associated with legacy applications and advanced applications in a graphical user interface." (see pg. 17). The applicant further argues "... Lipton fails to describe or suggest receiving the legacy application content in top-to-bottom order." (see pg. 17). The applicant further argues "... Erickson fails to describe or suggest stripping out application content from the received legacy window content" (see pg. 17). The applicant further argues "... Portuesi, Erickson, Apple Computers, Lipton, Lyons and Moki fail to describe or suggest the DWM to the CDWM that render the graphical user interface" (see pg. 17).

4. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

It should be further noted that merely stating that individual references do not teach or suggest the limitations as claimed, amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

In this instant case, the examiner interprets that Morgenstern teaches a computer implemented method for rendering a desktop window in a graphical user interface of an operating system shell, comprising: receiving application content, at a compositing desktop window manager (CDWM) (Quartz Compositor) (receiving the application content, pg. 1 last paragraph, pg. 3 third and fourth paragraphs), corresponding to the advanced applications in the graphical user interface (Quartz compositor takes information from the rendering component and writes it on the screen, Morgenstern: pg. 1 last paragraph; it should be noted that Morgenstern further teaches QuickDraw handles text, vector graphics and bitmapped images, and then send them to the screen and output devices, Morgenstern: pg. 1 fourth paragraph). Morgenstern further teaches the windows having translucent frame portions (translucent title bars of inactive windows, Morgenstern: pg. 2 third paragraph).

However, Morgenstern does not explicitly teach receiving application content from advance applications in a bottom-to-top order (video from VL is passed on to OpenGL by converting it into bottom-to-top orientation from top-to-bottom orientation, Portuesi: pg. 2-3), to display the application content received in a bottom-to-top order in windows (openGL renders in bottom-to-top orientation, Portuesi: pg. 2; Quartz 2D renders drawing primitives, PDF documents, text and images using bottom-to-top operation, Lindberg: pg. 1). However, Portuesi teaches exactly the same.

Morgenstern and Portuesi do not explicitly teach receiving, at a desktop window manager (DWM) (QuickDraw), application content information from legacy applications (Carbon/Cocoa application) (picture window is a Carbon application which uses

QuickDraw's drawing methods and text window is a Cocoa application which uses Quartz2D, Erickson: pg. 1 last two lines and pg. 2 first four paragraphs; it should be noted that examiner takes an official notice of the fact that QuickDraw is a legacy API from classic Mac OS). However, Erickson teaches exactly the same. Erickson further teaches stripping out application content from the legacy window content (QuickDraw receives the picture content from the picture window of the Carbon application, Erickson: pg. 1 last two lines and pg. 2 first three lines), and converting the application content to a graphical representation of the application content (QuickDraw generates the graphical representation of the application data using it's drawing methods; picture window is a Carbon application which uses QuickDraw's drawing methods and text window is a Cocoa application which uses Quartz2D, Erickson: pg. 1 last two lines and pg. 2 first four paragraphs). It should be further noted that Erickson teaches switching between the CDWM and the DWM to render the advanced application content and legacy application content (picture window is a Carbon application which uses QuickDraw's drawing methods and text window is a Cocoa application which uses Quartz2D; Erickson: pg. 1 last two lines and pg. 2 first four paragraphs; it should be noted that switching application content between DWM and CDWM is functionally equivalent to redirecting application content from DWM to CDWM).

Morgenstern, Portuesi and Erickson do not explicitly teach receiving application content in a top-to-bottom order (application content in the form of a print job specifies the layout direction left to right then top to bottom, Apple2: pg. 14; it should be noted that left to right then top to bottom is functionally equivalent to top to bottom order; print

job consists of drawing commands and printing system can receive drawing commands from an application in several ways including Carbon applications using QuickDraw, Apple2: pg. 24-25). However, Apple2 teaches exactly the same.

Morgenstern, Portuesi, Erickson and Apple2 do not explicitly teach displaying the application content in a top-to-bottom order (QuickDraw renders in top-to-bottom order, Lipton: pg. 4 figure 3 and pg. 5 first three lines) in windows corresponding to the legacy application in the graphics user interface. However, Lipton teaches exactly the same.

Morgenstern, Portuesi, Erickson, Apple2 and Lipton do not explicitly teach switching between the CDWM and the DWM to render the advanced application content and legacy application (Cocoa application that uses Quartz 2D does not provide all the needed functionality, so there is a switching between Quartz and QuickDraw for some things, Lyons: pg. 1). However, Lyons teaches exactly the same.

Morgenstern, Portuesi, Erickson, Apple2, Lipton and Lyons do not explicitly teach displaying at least a portion of the application content in an opaque content portion of the windows (fully opaque window with transparent sub-parts, Moki: sixth paragraph). However, Moki teaches exactly the same. Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to use different functionalities of different versions of Jaguar operating system as taught by Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons and Moki because combining different functionalities will result in a better and more user-friendly operating system.

Although Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons and Moki teaches the limitations as stated above, they do not explicitly teach the legacy texture

(texture of the composed email message 402) of the primary content (composed email message 402) is retained (captured and texture mapped) but legacy window frames, legacy borders, or legacy captions of the legacy application content are ignored. However, Adler teaches exactly the same ([0033]; it should be noted that as shown in figures 4 and 5, message body of the email message is displayed within a frameless window by texture mapping the captured email message text to the polygon set; it should be noted that though the texture of the message body is maintained, the frames surrounding the email message as shown in figure 4, are not displayed in figure 5, where the texture of the message body is displayed in a frameless window). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to use the knowledge of Adler into the system of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons and Moki because replacing the message body with a frameless window makes the message appear to fall away from the user and thus revealing the background image ([0033]).

5. Regarding claims 21 and 39, the applicant further argues "... nothing in Portuesi, Erickson, Apple Computers, Lipton, Lyons, and Moki, describes or suggests, among other things, redirecting application content from the DWM to the CDWM to render content in a graphical user interface" (see pg. 17).

6. However, the examiner disagrees. The examiner interprets that Erickson teaches switching between the CDWM and the DWM to render the advanced application content and legacy application content (picture window is a Carbon application which uses QuickDraw's drawing methods and text window is a Cocoa application which uses



Quartz2D; Erickson: pg. 1 last two lines and pg. 2 first four paragraphs; it should be noted that switching application content between DWM and CDWM is functionally equivalent to redirecting application content from DWM to CDWM). Please refer below to the rejection of claim 21 for details.

7. Regarding claim 44, the applicant argues Erickson, in view of Lyons and further in view of Siracusa, fails to describe or suggest "... providing legacy window information from an instance of a legacy application program to a legacy desktop window manager (DWM) executing on the computer; stripping out client content from the legacy window information wherein the legacy texture of the client content is retained but legacy window frames, legacy border, or legacy captions of the client content are ignored; ... applying a texture to a mesh, and wherein the texture comprises the raster image of the client content and default non-client information" (see pg. 20). The applicant also argues "... the references relied on by the Office do not provide a coherent and consistent description of Jaguar". (see pg. 20). The applicant further argues "... the references fail to describe converting legacy application content to a raster image that is used to texture a mesh created by a compositing window manager. (see pg. 20). The applicant further argues that Erickson, Lyons and Siracusa fail to describe "... rendering legacy application content as the texture of a mesh" and "...the default non-client information that is included in the texture" (see pg. 21). The applicant further argues that Erickson, Lyons and Siracusa do not suggest "... the interaction between a legacy DWM and CDWM to render content in a graphical user interface" (see pg. 21). The applicant

further argues that Erickson fails to teach "... stripping out application content from the received legacy window content" (see pg. 20).

8. However, the examiner disagrees. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

It should be further noted that merely stating that individual references do not teach or suggest the limitations as claimed, amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

In this instant case, the examiner interprets that Erickson, Lyons and Siracusa describe different versions of Jaguar operating system that teach the limitations as stated in claim 44. It would have been obvious to one of ordinary skill in the art to use different functionalities of different versions of Jaguar operating system as taught by Erickson, Lyons and Siracusa because combining different functionalities will result in a better and more user-friendly operating system.

In this instant case, the examiner interprets that Erickson teaches the instance of the legacy application program (Carbon/Cocoa application) providing legacy window information from an instance of a legacy application program to a legacy desktop window manager (DWM) (QuickDraw) executing on the computer (picture window is a Carbon application which uses QuickDraw's drawing methods and text window is a

Cocoa application which uses Quartz2D, Erickson: pg. 1 last two lines and pg. 2 first four paragraphs; it should be noted that examiner takes an official notice of the fact that QuickDraw is a legacy API from classic Mac OS). Erickson further teaches stripping out client content from the legacy window information (QuickDraw receives the picture content from the picture window of the Carbon application, Erickson: pg. 1 last two lines and pg. 2 first three lines), and converting the client content to raster image of the client content (QuickDraw generates the graphical representation of the application data using it's drawing methods; picture window is a Carbon application which uses QuickDraw's drawing methods and text window is a Cocoa application which uses Quartz2D, Erickson: pg. 1 last two lines and pg. 2 first four paragraphs; it should be also noted that picture window is a Carbon application which uses QuickDraw's drawing methods and text window is a Cocoa application which uses Quartz2D, Erickson: pg. 1 last two lines and pg. 2 first four paragraphs; It should be noted that Cocoa application that uses Quartz 2D does not provide all the needed functionality, so there is a switching between Quartz and QuickDraw for some things, Lyons: pg. 1).

Although Erickson teaches the limitations as stated, Erickson does not explicitly teach a compositing desktop window manager (CDWM) (Quartz 2D and Quartz compositor), executing on the computer, drawing a window to a buffer memory (Siracusa: pg. 1 last paragraph, pg. 2 first two paragraphs and figure on pg. 3), wherein the CDWM renders the window by applying a texture to a mesh (window/polygon) (it should be noted that a mesh according to the specification is 2D or 3D primitive, see paragraph [0015] on pg. 15; it should be further noted that each window is treated as an

OpenGL surface and the texture is mapped onto that surface, Siracusa: pg. 3 second paragraph and pg. 4 first five lines). However Siracusa teaches exactly the same (the window server, now an OpenGL application itself, retains the resulting bitmaps as textures on polygons in an OpenGL scene and composites them into a pleasing, cohesive final image on the screen, Siracusa: pg. 3 second paragraph). Siracusa further teaches wherein the texture comprises the raster image (bitmap) of the client content and the default non-client information (bitmap includes translucency and anti-aliasing information, Siracusa: pg. 1 last paragraph, pg. 2 first two paragraphs, pg. 3 second paragraph, pg. 4 first paragraph; all of the bitmapped data produced by QuickDraw is passed on to the Quartz Compositor for eventual display on the screen, Siracusa: pg. 1 seventh paragraph, figure on pg. 3 and 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to combine the teachings of Siracusa into the operating system of Erickson and Lyons because such an operating system will composite the resulting bitmaps as textures on polygons and composite them into a pleasing, cohesive final image on the screen.

Although Erickson, Lyons and Siracusa teaches the limitations as stated above, they do not explicitly teach the legacy texture (texture of the composed email message 402) of the primary content (composed email message 402) is retained (captured and texture mapped) but legacy window frames, legacy borders, or legacy captions of the legacy application content are ignored. However, Adler teaches exactly the same ([0033]; it should be noted that as shown in figures 4 and 5, message body of the email message is displayed within a frameless window by texture mapping the captured email

message text to the polygon set; it should be noted that though the texture of the message body is maintained, the frames surrounding the email message as shown in figure 4, are not displayed in figure 5, where the texture of the message body is displayed in a frameless window). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to use the knowledge of Adler into the system of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons and Moki because replacing the message body with a frameless window makes the message appear to fall away from the user and thus revealing the background image ([0033]).

9. Regarding claim 41, the applicant argues that Morgenstern and Moki in view of Solazzi, Whitman and Fowler, fail to suggest "... receiving application content to display in a window; ... the compositing desktop window manager is configured to provide transparency, shadows, lighting effects, bump mapping, and environment mapping via a pixel shader that manipulates pixels of the application content based on desktop-global properties and window-material properties" (see pg. 23). The applicant further argues "... nothing in Morgenstern describes or suggests environmental windowing effects" (see pg. 23). The applicant argues "... nothing in Moki describes or suggests a rendering engine capable of providing environmental mappings" (see pg. 23). The applicant also argues that Fowler does not teach "... a windows manager that provides bump mappings and environmental mappings" (see pg. 23).

10. However, the examiner disagrees. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re*

*Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

It should be further noted that merely stating that individual references do not teach or suggest the limitations as claimed, amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

In this instant case, the examiner interprets that Morgenstern teaches receiving application content to display in a window (Quartz compositor takes information from the rendering component and writes it on the screen, Morgenstern: pg. 1 last paragraph). Morgenstern further teaches window having a frame portion (translucent title bars of inactive windows, Morgenstern: pg. 2 third paragraph). Morgenstern further teaches the compositing desktop window manager is configured to provide transparency and shadows (Quartz's window server makes it easy to see the outlines and shadings of buttons and other window elements through the translucent title bars of inactive windows, Morgenstern: pg. 2 paragraph 3, figure 1).

Although Morgenstern teaches the limitations as stated, Morgenstern does not explicitly teach displaying at least a portion of the application content in a content portion of the window having a frame portion (fully opaque window with transparent sub-parts, Moki: sixth paragraph; transparent sub-parts such as title bars, shadows, etc., Moki: sixth paragraph; Moki further teaches fully opaque windows has transparent sub-parts such as title bar, the shadows, etc, Moki: paragraphs 3, 4, 6 and 9). . Therefore, it would have been obvious to one of ordinary skill in the art at the time of present

invention to use different functionalities of different versions of Jaguar operating system as taught by Morgenstern and Moki because combining different functionalities will result in a better and more user-friendly operating system.

Although Morgenstern and Moki teach the limitations as stated, they do not explicitly teach rendering spectral highlights on the frame portion based on a virtual light source by the compositing desktop window manager configured to provide light effects. However, Solazzi teaches a 3D image (window frame) can display reflective and refractive characteristics ([0008]; it should be noted that the unit performing 3D modeling corresponds to compositing desktop window manager; it should be noted that Whitman defines spectral highlight as a bright reflection from a light source containing little or no detail; Solazzi teaches a 3D image can display reflective characteristics, and therefore the reflective characteristics of the 3D image of Solazzi also includes spectral highlights which is a bright reflection from a light source; spectral highlights correspond to lighting effects; therefore, compositing desktop window manager provides lighting effects). Therefore, it would have been obvious to one of ordinary skill in art at the time of present invention to have 3D images with refractive characteristics as taught by Solazzi and apply into the operating system of Morgenstern and Moki because refractive properties added to the 3D image makes the image appear more realistic and reflective characteristics illustrate the ability of the object to reflect light ([0008], [0014]).

Although Morgenstern, Moki, Solazzi and Whitman teach the limitations as stated above, they do not explicitly the compositing desktop window manager is configured to provide bump mapping and environment mapping. However, Fowler teaches OpenGL

supports environment-mapped bump mapping (environment-mapped bump mapping corresponds to bump mapping and environment mapping, [0038-0039]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to provide bump mapping and environment mapping as taught by Fowler to the method Morgenstern, Moki, Solazzi and Whitman because such an approach will achieve a rendered surface whose appearance changes more realistically with lighting conditions ([0038]).

Although Morgenstern, Moki, Solazzi, Whitman and Fowler teach the limitations as stated above, they do not explicitly a pixel shader (it would be obvious that shading is performed by a shader or some device/unit) that manipulates pixels of application content based on desktop-global properties (light sources such as an infinite light source and an ambient light source) and window-material properties (material properties such as diffuse RGB color, specular power, specular RGB color and surface normal). However, Kelley teaches exactly the same (col. 9 lines 30-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to use a desktop-global properties and window-material properties as taught by Kelley into the system of Morgenstern, Moki, Solazzi, Whitman and Fowler because taking into account the material properties of an object surface and light sources in a scene helps to determine color of the pixel (col. 9 lines 38-40).

11. Regarding claim 43, the applicant argues that Morgenstern, Portuesi and Moki, in view of Solazzi, in view of Whitman, in view of Fowler and further in view of Ben-Shachar fails to suggest "... receiving, at a compositing desktop window manager,



application content in reverse z-order to display in a window; rendering refractive content on the frame portion based on other discrete content behind the window in the graphical user interface, including desktop-global properties or other window-material properties, by the compositing desktop window manager ... the compositing desktop window manager is configured to provide transparency, shadows, lighting effects, bump mapping, and environmental mapping" (see pg. 24-25). The applicant further argues "... Morgenstern, Portuesi and Moki describes some window transparency but fails to describe or suggest environmental mapping" (see pg. 25). The applicant further argues that Fowler fails to teach "... a windows manager that provides bump mappings and environmental mappings" and that Ben-Shachar fails to teach "... a compositing desktop window manager that receives application content in reverse z-order" (see pg. 25).

12. However, the examiner disagrees. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

It should be further noted that merely stating that individual references do not teach or suggest the limitations as claimed, amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

In this instant case, the examiner interprets that Morgenstern teaches receiving application content, at a compositing desktop window manager (CDWM) (receiving the

application content is taught by Morgenstern: pg. 1 last paragraph, pg. 3 third and fourth paragraphs). It should be noted that Morgenstern further teaches QuickDraw handles text, vector graphics and bitmapped images, and then send them to the screen and output devices (Quartz compositor takes information from the rendering component and writes it on the screen, Morgenstern: pg. 1 fourth paragraph and last paragraph). Morgenstern further teaches the windows having translucent frame portions (translucent title bars of inactive windows, Morgenstern: pg. 2 third paragraph). Morgenstern further teaches the compositing desktop window manager is configured to provide transparency and shadows (Quartz's window server makes it easy to see the outlines and shadings of buttons and other window elements through the translucent title bars of inactive windows, Morgenstern: pg. 2 paragraph 3, figure 1).

However, Morgenstern does not explicitly teach receiving application content in a bottom-to-top order (video from VL is passed on to OpenGL by converting it into bottom-to-top orientation from top-to-bottom orientation, Portuesi: pg. 2-3), to display the application content received in a bottom-to-top order in windows (OpenGL renders in bottom-to-top orientation, Portuesi: pg. 2; Quartz 2D renders drawing primitives, PDF documents, text and images using bottom-to-top operation, Lindberg: pg. 1). However, Portuesi teaches exactly the same.

Although Morgenstern and Portuesi teach the limitations as stated, they do not explicitly teach displaying at least a portion of the application content in a content portion of the window having a frame portion (fully opaque window with transparent sub-parts, Moki: sixth paragraph; transparent sub-parts such as title bars, shadows, etc.,

Moki: sixth paragraph; Moki further teaches fully opaque windows has transparent sub-parts such as title bar, the shadows, etc, Moki: paragraphs 3, 4, 6 and 9). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to use different functionalities of different versions of Jaguar operating system as taught by Morgenstern, Portuesi and Moki because combining different functionalities will result in a better and more user-friendly operating system.

Although Morgenstern, Portuesi and Moki teaches the limitations as stated above, they do not explicitly teach rendering refractive content on the frame portion based on the other discrete content behind the window in the graphical user interface by the compositing desktop window manager, which is configured to provide light effects. However, Solazzi teaches a 3D image (window frame) can display reflective and refractive characteristics ([0008]; it should be noted that the unit performing 3D modeling corresponds to compositing desktop window manager; it should be noted that Whitman defines spectral highlight as a bright reflection from a light source containing little or no detail; Solazzi teaches a 3D image can display reflective characteristics, and therefore the reflective characteristics of the 3D image of Solazzi also includes spectral highlights which is a bright reflection from a light source; spectral highlights correspond to lighting effects; therefore, compositing desktop window manager provides lighting effects). Therefore, it would have been obvious to one of ordinary skill in art at the time of present invention to have 3D images with refractive characteristics as taught by Solazzi and apply into the operating system of Morgenstern, Portuesi and Moki because

refractive properties added to the 3D image makes the image appear more realistic and reflective characteristics illustrate the ability of the object to reflect light ([0008], [0014]).

Although Morgenstern, Portuesi, Moki, Solazzi and Whitman teach the limitations as stated above, they do not explicitly the compositing desktop window manager is configured to provide bump mapping and environment mapping. However, Fowler teaches OpenGL supports environment-mapped bump mapping (environment-mapped bump mapping corresponds to bump mapping and environment mapping, [0038-0039]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to provide bump mapping and environment mapping as taught by Fowler to the method Morgenstern, Portuesi, Moki, Solazzi and Whitman because such an approach will achieve a rendered surface whose appearance changes more realistically with lighting conditions ([0038]).

Although Morgenstern, Portuesi, Moki, Solazzi, Whitman and Fowler teach the limitations as stated above, they do not explicitly rendering refractive/reflective content (diffuse reflection model) based on desktop-global properties (light sources such as an infinite light source and an ambient light source) and window-material properties (material properties such as diffuse RGB color, specular power, specular RGB color and surface normal). However, Kelley teaches exactly the same (col. 9 lines 30-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to use a desktop-global properties and window-material properties as taught by Kelley into the system of Morgenstern, Portuesi, Moki, Solazzi, Whitman and

Fowler because taking into account the material properties of an object surface and light sources in a scene helps to determine color of the pixel (col. 9 lines 38-40).

Although Morgenstern, Portuesi, Moki, Solazzi, Whitman and Fowler teach the limitations as stated above, they do not explicitly teach receiving the application content in reverse z-order. However, Ben-Shachar teaches exactly the same ([0061]; it should be noted that DT\_WINDLST packet containing a list corresponds to application content; it should be noted that the process proceeds through all windows in the windows list in reverse z-order). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to process through the windows list in reverse z-order as taught by Ben-Shachar and apply it to the method of Morgenstern, Portuesi, Moki, Solazzi, Whitman and Fowler because treating the window information in such a manner will create the viewer display of shared window ([0061]).

13. Regarding claim 42, the applicant argues Morgenstern, Portuesi, Erickson, Apple Computer, Lipton, Lyons and Moki, in view of Solazzi, in view of Whitman, in view of Fowler and further in view of Ben-Shachar fails to suggest "... receiving, at a compositing desktop window manager, application content in reverse z-order to display in a window; rendering reflective content on the frame portion based on other discrete content behind the window in the graphical user interface, including desktop-global properties or other window-material properties, by the compositing desktop window manager ... the compositing desktop window manager is configured to provide transparency, shadows, lighting effects, bump mapping, and environmental mapping" (see pg. 26). The applicant further argues "... Morgenstern, Portuesi Erickson, Apple

Computer, Lipton, Lyons and Moki fail to describe environmental mappings and receiving application content in reverse z-order" (see pg. 27). The applicant further argues that Fowler fails to teach "... a windows manager that provides bump mappings and environmental mappings" and that Ben-Shachar fails to teach "... a compositing desktop window manager that receives application content in reverse z-order" (see pg. 27).

14. However, the examiner disagrees. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

It should be further noted that merely stating that individual references do not teach or suggest the limitations as claimed, amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

The arguments presented for claim 42 are similar to that provided for claim 43, and therefore the examiner states the same reasons as presented above.

15. Regarding claim 45, the applicant argues that Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons and Moki, Siracusa, Farrah, and Meagher fails to describe "... dividing the mesh, associated with the window displayed by the computer, into three regions per mesh dimension; for each region, maintaining offsets of mesh vertices in any dimension by which the region is bounded by a bounding box of the window, and

scaling mesh vertices in any dimension by which the region is not bounded by the bounding box of the window" (see pg. 29).

16. However, the examiner disagrees. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

It should be further noted that merely stating that individual references do not teach or suggest the limitations as claimed, amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

In this instant case, the examiner interprets that Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Siracusa teach the limitations as stated, except that they do not explicitly teach receiving user input to resize the window and dividing the mesh into the three regions per mesh dimension. However, Farrah teaches to resize the window by dividing it into several equally sized and not equally sized regions based on the user input (fig. 21a-c, fig. 22a-c, [0225-0227], [0231-0235]; it should be noted that selecting the number of rows as "3" will divide the window in nine equal-sized regions; it should be noted that dividing window is functionally equivalent to resizing the window; it should be noted that dividing window is functionally equivalent to resizing the window; it should be noted that the window is being divided along x and y dimensions). Therefore, it would have been obvious to one of ordinary skill in art at the time of present invention

to divide a window mesh into several regions as taught by Farrah and apply it into the method of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Siracusa because such regions are commonly used in computer programs which are used to generate artworks, drawings and flow charts ([0006]).

Although the combination of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki, Siracusa and Farrah teach the limitations as stated above, they do not explicitly teach for each region, maintaining offsets of mesh vertices in any dimension by which the region is bounded by a bounding box of the window, and scaling mesh vertices in any dimension by which the region is not bounded by the bounding box of the window. However, Meagher shows offsets (maintaining offsets of mesh vertices) from each line correspond to vertices of each of the four windows, and the critical vertices for a window overlay selected from 3 x 3 array may be calculated by adding offsets (scaling the vertices) as a function of the value in x and y directions (fig. 6a-f, fig. 23a-e, col. 8 lines 31-51, col. 58 lines 64-67, col. 59 lines 1-15, col. 60 lines 3-21 and lines 56-67, col. 61 lines 1-17). Therefore, it would have been obvious to one of ordinary skill in art at the time of present invention to scale the vertices as taught by Meagher and apply it into the method of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki, Siracusa and Farrah because such a method scales the three-dimensional universe relative to the three-dimensional coordinate system using the independent scaling factors for each of the x, y and z directions input by floating point multiplication on the microcomputer (col. 60 lines 56-60).



***Claim Rejections - 35 USC § 101***

17. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

18. Claims 21-22, 27-31 and 37-40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

19. Regarding claims 21-22, 27-31 and 37-40, the broadest reasonable interpretation of the term "computer readable storage medium", as disclosed in claims 21-22, 27-31 and 37-40, covers forms of non-transitory tangible media and transitory propagating signals per se in view of the ordinary and customary meaning of computer readable media. The specification does not clearly describe what comprises a computer readable storage medium. The specification describes in paragraph [31] on page 8 "... Computer storage media includes, but is not limited to, RAM ... any other medium which can be used to store the desired information and which can accessed by computer 110". It should be noted that the specification does not limit the computer readable storage medium to physical storage devices only. Therefore, the broadest reasonable interpretation for the computer readable storage medium from the specification could include any medium used to store data, thus it could include transitory propagating signals such as carrier waves or signal waves. Since the broadest reasonable interpretation of "computer readable storage medium" as described in the specification, could cover transitory propagating signals, which are non-statutory, and therefore, the claims are rejected under 35 USC 101 as covering non-statutory subject matter.

***Claim Rejections - 35 USC § 103***

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 21 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over David Morgenstern (Under the desktop: Prospecting for Quartz in Mac OS X; <http://www.creativepro.com/story/feature/17439.html?origin=story>; August 22, 2002; pgs. 1-4; hereinafter Morgenstern), Portuesi et al. (Displaying In-Memory Video Using OpenGL; <http://www.lurkertech.com/lq/ogl.video.html>; October 16, 2002; hereinafter Portuesi), Shawn Erickson (Screenshot PDF; <http://www.omnigroup.com/maillman/archive/macosex-talk/2002-July/071171.html>; July 30, 2002; hereinafter Erickson), Apple Computers (About the Mac OS X Printing System; December 11, 2002; hereinafter Apple2), Lipton (QuickDraw GX for Postscript programmers; [http://www.mactech.com/articles/develop/issue\\_15/051-070\\_Lipton\\_final.html](http://www.mactech.com/articles/develop/issue_15/051-070_Lipton_final.html); August 19, 2000), Torrey Lyons (Re: MacOS X; <http://www.xfree86.org/pipermail/forum/2003-July/003741.html>; July 9, 2003; hereinafter Lyons), in view of Moki (Aqua help in Nvidia GeForce 4 [Archive] – AppleInsider; <http://forums.appleinsider.com/archive/index.php/t-1122.html>; January 28, 2002; pg. 1), and further in view of Adler (US 2004/0004613).

22. Regarding claim 21, Morgenstern teaches a computer implemented method for rendering a desktop window in a graphical user interface of an operating system shell,

comprising: receiving application content, at a compositing desktop window manager (CDWM) (Quartz Compositor) (receiving the application content, pg. 1 last paragraph, pg. 3 third and fourth paragraphs), corresponding to the advanced applications in the graphical user interface (Quartz compositor takes information from the rendering component and writes it on the screen, Morgenstern: pg. 1 last paragraph; it should be noted that Morgenstern further teaches QuickDraw handles text, vector graphics and bitmapped images, and then send them to the screen and output devices, Morgenstern: pg. 1 fourth paragraph). Morgenstern further teaches the windows having translucent frame portions (translucent title bars of inactive windows, Morgenstern: pg. 2 third paragraph).

However, Morgenstern does not explicitly teach receiving application content from advance applications in a bottom-to-top order (video from VL is passed on to OpenGL by converting it into bottom-to-top orientation from top-to-bottom orientation, Portuesi: pg. 2-3), to display the application content received in a bottom-to-top order in windows (openGL renders in bottom-to-top orientation, Portuesi: pg. 2; Quartz 2D renders drawing primitives, PDF documents, text and images using bottom-to-top operation, Lindberg: pg. 1). However, Portuesi teaches exactly the same.

Morgenstern and Portuesi do not explicitly teach receiving, at a desktop window manager (DWM) (QuickDraw), application content information from legacy applications (Carbon/Cocoa application) (picture window is a Carbon application which uses QuickDraw's drawing methods and text window is a Cocoa application which uses Quartz2D, Erickson: pg. 1 last two lines and pg. 2 first four paragraphs; it should be

noted that examiner takes an official notice of the fact that QuickDraw is a legacy API from classic Mac OS). However, Erickson teaches exactly the same. Erickson further teaches stripping out application content from the legacy window content (QuickDraw receives the picture content from the picture window of the Carbon application, Erickson: pg. 1 last two lines and pg. 2 first three lines), and converting the application content to a graphical representation of the application content (QuickDraw generates the graphical representation of the application data using its drawing methods; picture window is a Carbon application which uses QuickDraw's drawing methods and text window is a Cocoa application which uses Quartz2D, Erickson: pg. 1 last two lines and pg. 2 first four paragraphs). It should be further noted that Erickson teaches switching between the CDWM and the DWM to render the advanced application content and legacy application content (picture window is a Carbon application which uses QuickDraw's drawing methods and text window is a Cocoa application which uses Quartz2D; Erickson: pg. 1 last two lines and pg. 2 first four paragraphs; it should be noted that switching application content between DWM and CDWM is functionally equivalent to redirecting application content from DWM to CDWM).

Morgenstern, Portuesi and Erickson do not explicitly teach receiving application content in a top-to-bottom order (application content in the form of a print job specifies the layout direction left to right then top to bottom, Apple2: pg. 14; it should be noted that left to right then top to bottom is functionally equivalent to top to bottom order; print job consists of drawing commands and printing system can receive drawing commands

from an application in several ways including Carbon applications using QuickDraw, Apple2: pg. 24-25). However, Apple2 teaches exactly the same.

Morgenstern, Portuesi, Erickson and Apple2 do not explicitly teach displaying the application content in a top-to-bottom order (QuickDraw renders in top-to-bottom order, Lipton: pg. 4 figure 3 and pg. 5 first three lines) in windows corresponding to the legacy application in the graphics user interface. However, Lipton teaches exactly the same.

Morgenstern, Portuesi, Erickson, Apple2 and Lipton do not explicitly teach switching between the CDWM and the DWM to render the advanced application content and legacy application (Cocoa application that uses Quartz 2D does not provide all the needed functionality, so there is a switching between Quartz and QuickDraw for some things, Lyons: pg. 1). However, Lyons teaches exactly the same.

Morgenstern, Portuesi, Erickson, Apple2, Lipton and Lyons do not explicitly teach displaying at least a portion of the application content in an opaque content portion of the windows (fully opaque window with transparent sub-parts, Moki: sixth paragraph). However, Moki teaches exactly the same. Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to use different functionalities of different versions of Jaguar operating system as taught by Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons and Moki because combining different functionalities will result in a better and more user-friendly operating system.

Although Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons and Moki teaches the limitations as stated above, they do not explicitly teach a computer readable medium storing computer executable instructions that cause a computer to perform a

method of rendering a desktop window in a graphical user interface of an operating system. However, the examiner takes an official notice of the fact that it was known to one of ordinary skill in art at the time of present invention to execute a programmable process stored on use a computer readable medium because by using a portable computer readable medium to store a process that can be executed by the computer allows to perform the execution of the process on any computer and therefore provides portability and reusability.

Although Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons and Moki teaches the limitations as stated above, they do not explicitly teach the legacy texture (texture of the composed email message 402) of the primary content (composed email message 402) is retained (captured and texture mapped) but legacy window frames, legacy borders, or legacy captions of the legacy application content are ignored. However, Adler teaches exactly the same ([0033]; it should be noted that as shown in figures 4 and 5, message body of the email message is displayed within a frameless window by texture mapping the captured email message text to the polygon set; it should be noted that though the texture of the message body is maintained, the frames surrounding the email message as shown in figure 4, are not displayed in figure 5, where the texture of the message body is displayed in a frameless window). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to use the knowledge of Adler into the system of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons and Moki because replacing the message body with a

frameless window makes the message appear to fall away from the user and thus revealing the background image ([0033]).

23. Regarding claim 39, Moki teaches the frame portion is translucent when the window has an input focus (it should be noted that the title bar attached to the window has a level of transparency associated with them, so even a fully opaque window has transparent sub-parts such as the title bar, Moki: paragraph five and six).

24. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Adler, and further in view of Donham et al (US 6980209; hereinafter Donham).

25. Regarding claim 22, Morgenstern teaches distorting content on top of which the frame portion is rendered (contents underneath the translucent title bars of inactive windows can be seen, Morgenstern: pg. 2 paragraph three and fig. 1 and it's description; thus when a title bar is translucent, blending needs to be performed on the title bar and contents of another window underneath the translucent title bar). Further, Moki teaches a window can have shadow and a title bar (the shadow and title bar has a level of transparency associated with them, Moki: paragraph six and seven).

Although Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Adler teach the limitations as stated, they do not explicitly teach a pixel shader is needed to perform the blending. However, Donham teaches a pixel shader that blends the texels with the color values of the pixels to be textured (col. 5 lines 25-35). Therefore, it would have been obvious to one of ordinary skill in art at the time of present invention to use a

pixel shader to perform blending as taught by Donham into the method Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Adler because a pixel shader combines pixel data and texture data to produce the combined pixel data (col. 5 lines 25-31).

26. Claims 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Adler, and further in view of John Siracusa (Mac OS X 10.2 Jaguar; <http://arstechnica.com/reviews/os/macosex-10.2.ars/8>; September 5, 2002; pgs. 1-5; hereinafter Siracusa).

27. Regarding claims 27 and 28, Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Adler do not explicitly teach the CDWM modeling the window by applying a texture to a mesh (window/polygon). However, Siracusa teaches exactly the same (it should be noted that a mesh according to the specification is 2D or 3D primitive, see paragraph [0015] on pg. 15; it should be further noted that each window is treated as an OpenGL surface and the texture is mapped onto that surface, Siracusa: pg. 3 second paragraph and pg. 4 first five lines; the window server, now an OpenGL application itself, retains the resulting bitmaps as textures on polygons in an OpenGL scene and composites them into a pleasing, cohesive final image on the screen, Siracusa: pg. 3 second paragraph). Siracusa further teaches the mesh is defined by a current visual style (each window is drawn according to its position and layering; each window is represented as a bitmap that includes alpha channel and anti-aliasing



information; thus the position and layering of each window will give its current alpha channel information, which defines its current visual style; Siracusa: pg. 1 last paragraph). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to combine the teachings of Siracusa into the operating system of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Adler because such an operating system will composite the resulting bitmaps as textures on polygons and composite them into a pleasing, cohesive final image on the screen.

28. Regarding claim 29, Siracusa teaches the mesh is provided in the application content information (each window and its associated bitmap is provided to the Quartz compositor; Siracusa: pg. 1 last two paragraphs, pg. 3 second paragraph and pg. 4 first five lines). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to combine the teachings of Siracusa into the operating system of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Adler because such an operating system will composite the resulting bitmaps as textures on polygons and composite them into a pleasing, cohesive final image on the screen.

29. Regarding claim 30, Siracusa teaches the texture is defined by a current visual style (each window is drawn according to its position and layering; each window is represented as a bitmap that includes alpha channel and anti-aliasing information; the bitmap that makes up the window's contents is the texture mapped on that surface; thus the position and layering of each window and its associated bitmap texture will give its current alpha channel information, which defines its current visual style; Siracusa: pg. 1 last paragraph, pg. 3 second paragraph and pg. 4 first five lines). Therefore, it would

have been obvious to one of ordinary skill in the art at the time of present invention to combine the teachings of Siracusa into the operating system of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Adler because such an operating system will composite the resulting bitmaps as textures on polygons and composite them into a pleasing, cohesive final image on the screen.

30. Regarding claim 31, Siracusa teaches the texture is provided in the application content information (each window is drawn according to its position and layering; each window and it's associated bitmap texture is provided to the Quartz compositor to composite them into a pleasing, cohesive final image on the screen; Siracusa: pg. 1 last two paragraphs, pg. 3 second paragraph and pg. 4 first five lines). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to combine the teachings of Siracusa into the operating system of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Adler because such an operating system will composite the resulting bitmaps as textures on polygons and composite them into a pleasing, cohesive final image on the screen.

31. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Adler, in view of Solazzi, and further in view of Whitman (Technology Terminology, Mike Whitman, May 13, 2001, <http://web.archive.org/web/20010513215002/http://bigelowmiddleschool.com/programs/Teched/techterms.html>).

32. Regarding claim 37, although Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Adler teach the limitations as stated, they do not explicitly teach the frame comprises spectral highlights based on a virtual light source. However, Solazzi teaches a 3D image (window frame) can reflect the surroundings ([0008]; it should be noted that Whitman defines spectral highlight as a bright reflection from a light source containing little or no detail; Solazzi teaches a 3D image can display reflective characteristics, and therefore the reflective characteristics of the 3D image of Solazzi also includes spectral highlights which is a bright reflection from a light source). Therefore, it would have been obvious to one of ordinary skill in art at the time of present invention to have 3D images with reflective characteristics as taught by Solazzi and apply into the operating system of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Adler because such reflective characteristics illustrate the ability of the object to reflect light ([0008]).

33. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Adler, and further in view of Solazzi (US 2003/0107570).

34. Regarding claim 38, although Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Adler teach the limitations as stated, they do not explicitly teach the frame comprises reflective content based on other content in the graphical user interface separate from the window. However, Solazzi teaches a 3D image (window frame) can reflect the surroundings (other content in the graphical user interface

separate from the window) ([0008]). Therefore, it would have been obvious to one of ordinary skill in art at the time of present invention to have 3D images with reflective characteristics as taught by Solazzi and apply into the operating system of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Adler because such reflective characteristics illustrate the ability of the object to reflect light ([0008]).

35. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgenstern, in view of Moki, in view of Solazzi, in view of Whitman, in view of Fowler et al. (US 2002/0180741; hereinafter Fowler), and further in view of Kelley et al. (US 5307449, hereinafter Kelley).

36. Regarding claim 41, Morgenstern teaches a computer implemented method for rendering a desktop window in a graphical user interface of an operating system shell, comprising: receiving application content to display in a window (Quartz compositor takes information from the rendering component and writes it on the screen, Morgenstern: pg. 1 last paragraph). Morgenstern further teaches window having a frame portion (translucent title bars of inactive windows, Morgenstern: pg. 2 third paragraph). Morgenstern further teaches the compositing desktop window manager is configured to provide transparency and shadows (Quartz's window server makes it easy to see the outlines and shadings of buttons and other window elements through the translucent title bars of inactive windows, Morgenstern: pg. 2 paragraph 3, figure 1).

Although Morgenstern teaches the limitations as stated, Morgenstern does not explicitly teach displaying at least a portion of the application content in a content

portion of the window having a frame portion (fully opaque window with transparent sub-parts, Moki: sixth paragraph; transparent sub-parts such as title bars, shadows, etc., Moki: sixth paragraph; Moki further teaches fully opaque windows has transparent sub-parts such as title bar, the shadows, etc, Moki: paragraphs 3, 4, 6 and 9). . Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to use different functionalities of different versions of Jaguar operating system as taught by Morgenstern and Moki because combining different functionalities will result in a better and more user-friendly operating system.

Although Morgenstern and Moki teach the limitations as stated, they do not explicitly teach rendering spectral highlights on the frame portion based on a virtual light source by the compositing desktop window manager configured to provide light effects. However, Solazzi teaches a 3D image (window frame) can display reflective and refractive characteristics ([0008]; it should be noted that the unit performing 3D modeling corresponds to compositing desktop window manager; it should be noted that Whitman defines spectral highlight as a bright reflection from a light source containing little or no detail; Solazzi teaches a 3D image can display reflective characteristics, and therefore the reflective characteristics of the 3D image of Solazzi also includes spectral highlights which is a bright reflection from a light source; spectral highlights correspond to lighting effects; therefore, compositing desktop window manager provides lighting effects). Therefore, it would have been obvious to one of ordinary skill in art at the time of present invention to have 3D images with refractive characteristics as taught by Solazzi and apply into the operating system of Morgenstern and Moki because

refractive properties added to the 3D image makes the image appear more realistic and reflective characteristics illustrate the ability of the object to reflect light ([0008], [0014]).

Although Morgenstern, Moki, Solazzi and Whitman teach the limitations as stated above, they do not explicitly the compositing desktop window manager is configured to provide bump mapping and environment mapping. However, Fowler teaches OpenGL supports environment-mapped bump mapping (environment-mapped bump mapping corresponds to bump mapping and environment mapping, [0038-0039]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to provide bump mapping and environment mapping as taught by Fowler to the method Morgenstern, Moki, Solazzi and Whitman because such an approach will achieve a rendered surface whose appearance changes more realistically with lighting conditions ([0038]).

Although Morgenstern, Moki, Solazzi, Whitman and Fowler teach the limitations as stated above, they do not explicitly a pixel shader (it would be obvious that shading is performed by a shader or some device/unit) that manipulates pixels of application content based on desktop-global properties (light sources such as an infinite light source and an ambient light source) and window-material properties (material properties such as diffuse RGB color, specular power, specular RGB color and surface normal). However, Kelley teaches exactly the same (col. 9 lines 30-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to use a desktop-global properties and window-material properties as taught by Kelley into the system of Morgenstern, Moki, Solazzi, Whitman and Fowler because taking into

account the material properties of an object surface and light sources in a scene helps to determine color of the pixel (col. 9 lines 38-40).

37. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgenstern, Portuesi and Moki, in view of Solazzi, in view of Whitman, in view of Fowler, in view of Kelley, and further in view of Ben-Shachar et al. (US 2003/0189599; hereinafter Ben-Shachar).

38. Regarding claim 43, Morgenstern teaches a computer implemented method for rendering a desktop window in a graphical user interface of an operating system shell, comprising: receiving application content, at a compositing desktop window manager (CDWM) (receiving the application content is taught by Morgenstern: pg. 1 last paragraph, pg. 3 third and fourth paragraphs). It should be noted that Morgenstern further teaches QuickDraw handles text, vector graphics and bitmapped images, and then send them to the screen and output devices (Quartz compositor takes information from the rendering component and writes it on the screen, Morgenstern: pg. 1 fourth paragraph and last paragraph). Morgenstern further teaches the windows having translucent frame portions (translucent title bars of inactive windows, Morgenstern: pg. 2 third paragraph). Morgenstern further teaches the compositing desktop window manager is configured to provide transparency and shadows (Quartz's window server makes it easy to see the outlines and shadings of buttons and other window elements through the translucent title bars of inactive windows, Morgenstern: pg. 2 paragraph 3, figure 1).

However, Morgenstern does not explicitly teach receiving application content in a bottom-to-top order (video from VL is passed on to OpenGL by converting it into bottom-to-top orientation from top-to-bottom orientation, Portuesi: pg. 2-3), to display the application content received in a bottom-to-top order in windows (openGL renders in bottom-to-top orientation, Portuesi: pg. 2; Quartz 2D renders drawing primitives, PDF documents, text and images using bottom-to-top operation, Lindberg: pg. 1). However, Portuesi teaches exactly the same.

Although Morgenstern and Portuesi teach the limitations as stated, they do not explicitly teach displaying at least a portion of the application content in a content portion of the window having a frame portion (fully opaque window with transparent sub-parts, Moki: sixth paragraph; transparent sub-parts such as title bars, shadows, etc., Moki: sixth paragraph; Moki further teaches fully opaque windows has transparent sub-parts such as title bar, the shadows, etc, Moki: paragraphs 3, 4, 6 and 9). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to use different functionalities of different versions of Jaguar operating system as taught by Morgenstern, Portuesi and Moki because combining different functionalities will result in a better and more user-friendly operating system.

Although Morgenstern, Portuesi and Moki teaches the limitations as stated above, they do not explicitly teach rendering refractive content on the frame portion based on the other discrete content behind the window in the graphical user interface by the compositing desktop window manager, which is configured to provide light effects. However, Solazzi teaches a 3D image (window frame) can display reflective and



refractive characteristics ([0008]; it should be noted that the unit performing 3D modeling corresponds to compositing desktop window manager; it should be noted that Whitman defines spectral highlight as a bright reflection from a light source containing little or no detail; Solazzi teaches a 3D image can display reflective characteristics, and therefore the reflective characteristics of the 3D image of Solazzi also includes spectral highlights which is a bright reflection from a light source; spectral highlights correspond to lighting effects; therefore, compositing desktop window manager provides lighting effects). Therefore, it would have been obvious to one of ordinary skill in art at the time of present invention to have 3D images with refractive characteristics as taught by Solazzi and apply into the operating system of Morgenstern, Portuesi and Moki because refractive properties added to the 3D image makes the image appear more realistic and reflective characteristics illustrate the ability of the object to reflect light ([0008], [0014]).

Although Morgenstern, Portuesi, Moki, Solazzi and Whitman teach the limitations as stated above, they do not explicitly the compositing desktop window manager is configured to provide bump mapping and environment mapping. However, Fowler teaches OpenGL supports environment-mapped bump mapping (environment-mapped bump mapping corresponds to bump mapping and environment mapping, [0038-0039]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to provide bump mapping and environment mapping as taught by Fowler to the method Morgenstern, Portuesi, Moki, Solazzi and Whitman because such an approach will achieve a rendered surface whose appearance changes more realistically with lighting conditions ([0038]).

Although Morgenstern, Portuesi, Moki, Solazzi, Whitman and Fowler teach the limitations as stated above, they do not explicitly rendering refractive/reflective content (diffuse reflection model) based on desktop-global properties (light sources such as an infinite light source and an ambient light source) and window-material properties (material properties such as diffuse RGB color, specular power, specular RGB color and surface normal). However, Kelley teaches exactly the same (col. 9 lines 30-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to use a desktop-global properties and window-material properties as taught by Kelley into the system of Morgenstern, Portuesi, Moki, Solazzi, Whitman and Fowler because taking into account the material properties of an object surface and light sources in a scene helps to determine color of the pixel (col. 9 lines 38-40).

Although Morgenstern, Portuesi, Moki, Solazzi, Whitman and Fowler teach the limitations as stated above, they do not explicitly teach receiving the application content in reverse z-order. However, Ben-Shachar teaches exactly the same ([0061]; it should be noted that DT\_WINDLST packet containing a list corresponds to application content; it should be noted that the process proceeds through all windows in the windows list in reverse z-order). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to process through the windows list in reverse z-order as taught by Ben-Shachar and apply it to the method of Morgenstern, Portuesi, Moki, Solazzi, Whitman and Fowler because treating the window information in such a manner will create the viewer display of shared window ([0061]).

39. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons and Moki, in view of Solazzi, in view of Whitman, in view of Fowler, in view of Kelley and further in view of Ben-Shachar.

40. Regarding claim 42, the statements presented above with respect to claims 21, 38 and 43 are incorporated herein.

41. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Erickson, in view of Lyons, in view of Siracusa, and further in view of Adler.

42. Regarding claim 44, Erickson teach the instance of the legacy application program (Carbon/Cocoa application) providing legacy window information from an instance of a legacy application program to a legacy desktop window manager (DWM) (QuickDraw) executing on the computer (picture window is a Carbon application which uses QuickDraw's drawing methods and text window is a Cocoa application which uses Quartz2D, Erickson: pg. 1 last two lines and pg. 2 first four paragraphs; it should be noted that examiner takes an official notice of the fact that QuickDraw is a legacy API from classic Mac OS). Erickson further teaches stripping out client content from the legacy window information (QuickDraw receives the picture content from the picture window of the Carbon application, Erickson: pg. 1 last two lines and pg. 2 first three lines), and converting the client content to raster image of the client content (QuickDraw generates the graphical representation of the application data using it's drawing methods; picture window is a Carbon application which uses QuickDraw's drawing

methods and text window is a Cocoa application which uses Quartz2D, Erickson: pg. 1 last two lines and pg. 2 first four paragraphs; it should be also noted that picture window is a Carbon application which uses QuickDraw's drawing methods and text window is a Cocoa application which uses Quartz2D, Erickson: pg. 1 last two lines and pg. 2 first four paragraphs; It should be noted that Cocoa application that uses Quartz 2D does not provide all the needed functionality, so there is a switching between Quartz and QuickDraw for some things, Lyons: pg. 1).

Although Erickson teaches the limitations as stated, Erickson does not explicitly teach a compositing desktop window manager (CDWM) (Quartz 2D and Quartz compositor), executing on the computer, drawing a window to a buffer memory (Siracusa: pg. 1 last paragraph, pg. 2 first two paragraphs and figure on pg. 3), wherein the CDWM renders the window by applying a texture to a mesh (window/polygon) (it should be noted that a mesh according to the specification is 2D or 3D primitive, see paragraph [0015] on pg. 15; it should be further noted that each window is treated as an OpenGL surface and the texture is mapped onto that surface, Siracusa: pg. 3 second paragraph and pg. 4 first five lines). However Siracusa teaches exactly the same (the window server, now an OpenGL application itself, retains the resulting bitmaps as textures on polygons in an OpenGL scene and composites them into a pleasing, cohesive final image on the screen, Siracusa: pg. 3 second paragraph). Siracusa further teaches wherein the texture comprises the raster image (bitmap) of the client content and the default non-client information (bitmap includes translucency and anti-aliasing information, Siracusa: pg. 1 last paragraph, pg. 2 first two paragraphs, pg. 3 second

paragraph, pg. 4 first paragraph; all of the bitmapped data produced by QuickDraw is passed on to the Quartz Compositor for eventual display on the screen, Siracusa: pg. 1 seventh paragraph, figure on pg. 3 and 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time of present invention to combine the teachings of Siracusa into the operating system of Erickson and Lyons because such an operating system will composite the resulting bitmaps as textures on polygons and composite them into a pleasing, cohesive final image on the screen. Further, it would have been obvious to one of ordinary skill in the art to use different functionalities of different versions of Jaguar operating system as taught by Erickson, Lyons and Siracusa because combining different functionalities will result in a better and more user-friendly operating system.

Although Erickson, Lyons and Siracusa teach the limitations as stated above, they do not explicitly teach the legacy texture (texture of the composed email message 402) of the primary content (composed email message 402) is retained (captured and texture mapped) but legacy window frames, legacy borders, or legacy captions of the legacy application content are ignored. However, Adler teaches exactly the same ([0033]; it should be noted that as shown in figures 4 and 5, message body of the email message is displayed within a frameless window by texture mapping the captured email message text to the polygon set; it should be noted that though the texture of the message body is maintained, the frames surrounding the email message as shown in figure 4, are not displayed in figure 5, where the texture of the message body is displayed in a frameless window). Therefore, it would have been obvious to one of

ordinary skill in the art at the time of present invention to use the knowledge of Adler into the system of Erickson, Lyons and Siracusa because replacing the message body with a frameless window makes the message appear to fall away from the user and thus revealing the background image ([0033]).

43. Claims 40 and 45-48 rejected under 35 U.S.C. 103(a) as being unpatentable over Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Siracusa, in view of Farrah (US 2004/0030997), and further in view of Meagher (US 4694404).

44. Regarding claims 40 and 45-47, Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Siracusa teach the limitations as stated, except that they do not explicitly teach receiving user input to resize the window and dividing the mesh into the three regions per mesh dimension. However, Farrah teaches to resize the window by dividing it into several equally sized and not equally sized regions based on the user input (fig. 21a-c, fig. 22a-c, [0225-0227], [0231-0235]; it should be noted that selecting the number of rows as "3" will divide the window in nine equal-sized regions; it should be noted that dividing window is functionally equivalent to resizing the window; it should be noted that dividing window is functionally equivalent to resizing the window; it should be noted that the window is being divided along x and y dimensions). Therefore, it would have been obvious to one of ordinary skill in art at the time of present invention to divide a window mesh into several regions as taught by Farrah and apply it into the method of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki and Siracusa

because such regions are commonly used in computer programs which are used to generate artworks, drawings and flow charts ([0006]).

Although the combination of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki, Siracusa and Farrah teach the limitations as stated above, they do not explicitly teach for each region, maintaining offsets of mesh vertices in any dimension by which the region is bounded by a bounding box of the window, and scaling mesh vertices in any dimension by which the region is not bounded by the bounding box of the window. However, Meagher shows offsets (maintaining offsets of mesh vertices) from each line correspond to vertices of each of the four windows, and the critical vertices for a window overlay selected from 3 x 3 array may be calculated by adding offsets (scaling the vertices) as a function of the value in x and y directions (fig. 6a-f, fig. 23a-e, col. 8 lines 31-51, col. 58 lines 64-67, col. 59 lines 1-15, col. 60 lines 3-21 and lines 56-67, col. 61 lines 1-17). Therefore, it would have been obvious to one of ordinary skill in art at the time of present invention to scale the vertices as taught by Meagher and apply it into the method of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki, Siracusa and Farrah because such a method scales the three-dimensional universe relative to the three-dimensional coordinate system using the independent scaling factors for each of the x, y and z directions input by floating point multiplication on the microcomputer (col. 60 lines 56-60).

45. Regarding claim 48, although the combination of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki, Siracusa and Farrah teach the limitations as stated above, they do not explicitly teach regions bounded by the bounding box are as

small as necessary to encompass material that should not be scaled. However, Meagher teaches the bounding box of the node projection is the same size or smaller (in each dimension) as a window at that level depending on the size of the node projection as determined by the user specified scale factor (the size of the bounding box depends on the scale factor determined by the use, col. 44 lines 57-67, col. 45 lines 1-5). Therefore, it would have been obvious to one of ordinary skill in art at the time of present invention to have the bounding box size is determined by the scale factor as taught by Meagher and apply it into the method of Morgenstern, Portuesi, Erickson, Apple2, Lipton, Lyons, Moki, Siracusa and Farrah because it helps to determine if the node projection intersects any non-full window in the current window overlay (col. 45 lines 6-10).

***Allowable Subject Matter***

46. Claims 1-2, 7-11, 15 and 17-20 are allowed.
47. The following is a statement of reasons for the indication of allowable subject matter:
48. Regarding claim 1, the prior art of reference do not teach, either individually or in combination, "switching between the CDWM and the DWM to render the advanced application content and legacy application content based on hardware or power constraints in a computer system displaying the graphical user interface".
49. It should be noted that Morgenstern teaches a "switch model" that tracks the top-most window and display it to the user using the operating system. The switch model is



called so because the pixels displayed belong to one window or the desktop and switch immediately when moving from one window to another. However, Morgenstern does not teach the switching based on the hardware or power constraint in a computer system.

50. Claims 2, 7-11, 15 and 17-20 depend on claim 1 and therefore the examiner gives same reasons as above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JWALANT AMIN whose telephone number is (571)272-2455. The examiner can normally be reached on 10:30 a.m. - 7:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on 571-272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Kee M Tung/

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Supervisory Patent Examiner, Art Unit 2628

/J. A./

Examiner, Art Unit 2628